III.B.2.N.e. Seasonally flooded cold-deciduous shrubland

III.B.2.N.e.13. SALIX BRACHYCARPA SEASONALLY FLOODED SHRUBLAND ALLIANCE

Short-fruit Willow Seasonally Flooded Shrubland Alliance

SALIX BRACHYCARPA / CAREX AQUATILIS SHRUBLAND

Short-fruit Willow / Aquatic Sedge Shrubland

ELEMENT CONCEPT

GLOBAL SUMMARY: This association is known from the upper montane zones of the Rocky Mountains. Specifically it is known from the upper South Platte River Basin, the Rio Grande National Forest, and the San Juan National Forest in southwestern Colorado. It is likely to occur in Utah. *Salix brachycarpa* is an abundant low-stature (1-3 feet, 0.3-1 m) willow of first and second-order streams of subalpine elevations (9200-10,200 feet) in Colorado. It is unusual for *Salix brachycarpa* to occur with *Carex aquatilis* since *Salix brachycarpa* typically grows on drier sites. This association occurs on low floodplains immediately adjacent to the stream channel. Stream reaches are broad, low gradient, and meandering or braided. The water table can be within the first 8 inches (20 cm) of soil early in the season. Since *Salix brachycarpa* is typically not associated with *Carex aquatilis*, this plant association may indicate that a site was once wetter and is now becoming drier allowing *Salix brachycarpa* to establish. *Salix brachycarpa* is the dominant shrub with 15-20% cover. Other shrubs present include *Dasiphora fruticosa ssp. floribunda (= Pentaphylloides floribunda), Salix wolfii*, and *Salix monticola*. The understory is a thick carpet of grasses and grass-like plants dominated by 15-30% cover of *Carex aquatilis*. Forb cover is sparse. In Colorado, occurrences of this plant association also have *Dasiphora fruticosa ssp. floribunda* and *Juncus balticus var. montanus* which increase in abundance under persistent heavy livestock grazing. These sites may be shifting from wetter plant associations to drier *Dasiphora fruticosa ssp. floribunda* or *Salix brachycarpa* associations.

ENVIRONMENTAL DESCRIPTION

USFWS Wetland System: PALUSTRINE

Florissant Fossil Beds NM Environment: This shrubland association is unusual within the monument; only one stand was observed on a small tributary drainage to Grape Creek. This drainage was flowing down a 3% gradient, and the associated floodplain was saturated to the surface. The stand occupied both edges of the flowing stream at the base of outwash or toeslope sediments from an adjacent ridge.

Global Environment: This association occurs on low floodplains immediately adjacent to the stream channel. Stream reaches are broad, low-gradient, and meandering or braided. The water table can be within the first 20 cm (8 inches) of soil early in the season. Since *Salix brachycarpa* is typically not associated with *Carex aquatilis*, this plant association may indicate that a site was once wetter and is now becoming drier allowing *Salix brachycarpa* to establish.

VEGETATION DESCRIPTION

Florissant Fossil Beds NM Vegetation: Only one stand of this shrubland was observed and sampled, near the northern monument boundary. The stand is linear, not more than 15 m wide and less than 100 m long. *Salix brachycarpa* was the dominant shrub at a height of 1–2 m and provided approximately 20% foliar cover. An additional 5–7% foliar cover was provided by the tall (2–5 m) shrub *Salix monticola* and short-stature *Dasiphora fruticosa, Ribes inerme*, and *Rosa woodsii*. *Carex aquatilis* was the dominant graminoid, providing approximately 40% foliar cover, with *Carex utriculata, Juncus balticus, Deschampsia caespitosa, Calamagrostis canadensis*, and the exotic grasses *Bromus inermis* and *Poa pratensis* contributing approximately 10% foliar cover. Forbs common to this stand included *Mertensia ciliata, Potentilla plattensis, Achillea millefolium, Mentha arvensis*, and *Cirsium scariosum (= Cirsium tioganum)*, in addition to several other species; they contributed approximately 5% foliar cover. Ground cover within the stand was approximately 90% litter, in addition to standing/flowing water and woody litter.

This small stand is below the minimum mapping unit for the project, but because of its known location could be mapped as a park special. It is part of the patchy distribution of willow shrubs within the monument. Its aerial photograph signature is identical to other willow associations in the monument, e.g., dark green to nearly black on true color and bright pink on CIR.

Global Vegetation: *Salix brachycarpa* is the dominant shrub with 15-70% cover. Other shrubs present include *Dasiphora fruticosa ssp. floribunda (= Pentaphylloides floribunda), Salix wolfii*, and *Salix monticola*. The understory is a thick carpet of grasses and grass-like plants dominated by 15-30% cover of *Carex aquatilis*. Other graminoids that may be present include *Carex utriculata* (2-15%), *Juncus balticus var. montanus* (1-22%), *Carex scopulorum* (21%), *Carex interior* (2-10%), and *Deschampsia caespitosa* (3-10%).

Forb cover is generally sparse to occasionally lush and usually diverse. Forb species include *Thermopsis divaricarpa*, *Maianthemum stellatum*, and *Potentilla* spp.

Global Dynamics: *Salix planifolia*, *Salix brachycarpa,* and *Salix wolfii* are abundant low-statured (1-3 feet, 0.3-1 m) willows of first- and second-order streams of subalpine elevations of Colorado. *Salix planifolia* and *Salix brachycarpa* can form extensive stands, often creating intricate mosaics in broad, subalpine valleys. In general, *Salix planifolia* occupies the wettest micro-habitats on peat soils, although it can grow well on mineral soils. *Salix brachycarpa* is more often found on slightly drier and more well-drained micro-habitats than *Salix planifolia*. *Salix brachycarpa* grows on lateral moraines, coarse-textured streambanks, ridgetops and on small hummocks (Kittel 1994).

It is unusual for *Salix brachycarpa* to occur with *Carex aquatilis* since *Salix brachycarpa* typically grows on drier sites. Soil data indicate that occurrences of this plant association are perennially wet or have been in the past. It is possible that with heavy grazing and recreational use, these sites have begun to dry out and *Salix brachycarpa* is becoming established. In the South Platte River Basin, occurrences of this plant association also have abundant *Pentaphylloides floribunda* and *Juncus balticus var. montanus* which are increaser species under persistent heavy livestock grazing. These sites may be shifting from wetter *Salix monticola* or *Salix planifolia* associations to drier *Pentaphylloides floribunda* or *Salix brachycarpa* associations (Kittel et al. 1997).

MOST ABUNDANT SPECIES

Florissant Fossil Beds NM

Stratum	Species
Shrub	*Salix brachycarpa, Salix monticola, Dasiphora fruticosa*
Graminoid	*Carex aquatilis, Carex utriculata, Juncus balticus*
Forb	*Mertensia ciliata, Potentilla plattensis*

Global

Stratum	Species
Shrub	*Salix brachycarpa, Dasiphora fruticosa*
Graminoid	*Carex aquatilis, Carex utriculata, Juncus balticus*
Forb	*Cardamine cordifolia*

CHARACTERISTIC SPECIES

Florissant Fossil Beds NM

Stratum	Species
Shrub	*Salix brachycarpa*
Graminoid	*Carex aquatilis, Carex utriculata*
Forb	*Mertensia ciliata*

Global

Stratum	Species
Shrub	*Salix brachycarpa*
Graminoid	*Carex aquatilis*

OTHER NOTEWORTHY SPECIES

Florissant Fossil Beds NM

Global

Stratum	Species

GLOBAL SIMILAR ASSOCIATIONS:

SYNONYMY:

- DRISCOLL FORMATION CODE:III.B.3.d. (Driscoll et al. 1984) B
- *Salix brachycarpa/Carex rostrata* (Bourgeron and Engelking 1994) =

GLOBAL STATUS AND CLASSIFICATION COMMENTS

Global Conservation Status Rank: G2G3.
Global Classification Comments: The *Salix brachycarpa / Carex aquatilis* and the *Salix brachycarpa / Calamagrostis canadensis* plant associations were previously described by Bierly (1972) from Rocky Mountain National Park, Colorado. However, researchers

studying wetlands in the same site as Beirly have since determined that *Salix brachycarpa* was misidentified, and that in fact *Salix wolfii* is the dominant willow at that site (Cooper 1990).

This community type is not described elsewhere in the literature (Padgett et al. (1989) mention it as a miscellaneous community type), and is known only from four plots. It consists of an odd combination of mesic and less mesic habitat demanding plant species, suggesting it may be limited to ecotonal habitats, an unusual set of environmental parameters, or sites in a relatively short-lived successional transition between wetter and drier habitats.

ELEMENT DISTRIBUTION

Florissant Fossil Beds NM Range: One small, linear stand (<100 m long) of *Salix brachycarpa / Carex aquatilis* Shrubland was observed and sampled on a tributary drainage to Grape Creek, near the northern monument boundary.

Global Range: This association is known from the upper montane zones of the Rocky Mountains. Specifically it is known from the upper South Platte River Basin, the Rio Grande National Forest, and the San Juan National Forest in southwestern Colorado. It is likely to occur in Utah.

Nations: US
States/Provinces: CO UT?

ELEMENT SOURCES

Florissant Fossil Beds NM Inventory Notes: Plot 67
Classification Confidence: 2 **Identifier:** CEGL001244
REFERENCES: Bierly 1972, Bourgeron and Engelking 1994, CONHP n.d., Cooper 1990, Driscoll et al. 1984, Kittel 1994, Kittel et al. 1997, Kittel et al. 1999, Padgett et al. 1989